WHAT IS CLAIMED IS:

1. A method for determining an overlay error between at least two layers in a multiple layer sample, the method comprising:

providing a sample having a plurality of periodic targets that each have a first structure in a first layer and a second structure in a second layer, wherein there are predefined offsets between the first and second structures;

using a scatterometry overlay metrology, obtaining scatterometry overlay data from a first set of the periodic targets based on one or more measured optical signals from the first target set on the sample; and

using an imaging overlay metrology, obtaining imaging overlay data from a second set of the periodic targets based on one or more image(s) from the second target set on the sample.

2. A method as recited in claim 1, wherein both the scatterometry overlay data and imaging overlay data are obtained using an optical system comprising an imaging overlay tool for determining overlay from an image and a scatterometry overlay tool for determining overlay using a scatterometry overlay technique and wherein the scatterometry overlay tool is used to measure the measured optical signal(s) from the first target set and the imaging overlay tool is used to generate the image(s) from the second target set.

3. A method as recited in claim 2, wherein the imaging overlay tool is a separate module from the scatterometry overlay tool.

4. A method as recited in claim 2, wherein the imaging overlay tool is integrated with the scatterometry overlay tool.

5. A method as recited in claim 2, wherein the imaging overlay tool is a separate module from the scatterometry overlay tool and the optical system further includes a sample handling component for moving the sample between the imaging overlay tool and the scatterometry overlay tool.

6. A method as recited in claim 1, wherein the measured signals are in the form of a characteristic of one or more images of the first target set.

7. A method as recited in claim 1, further comprising selecting the first target set from which the scatterometry overlay data is obtained and selecting the second target set from which the imaging overlay data is obtained, wherein the selections are based on one or more criteria.

8. A method as recited in claim 7, wherein the criteria include relative performance and relative speed of the scatterometry overlay metrology and the imaging overlay metrology.

9. A method as recited in claim 7, wherein the criteria include relative performance of the scatterometry overlay metrology and the imaging overlay metrology and relative size of the periodic targets.

10. A method as recited in claim 9, wherein the larger periodic targets are selected for the scatterometry overlay metrology and the smaller periodic targets are selected for the imaging overlay metrology.

11. A method as recited in claim 7, wherein the periodic targets in a scribe line of the sample are selected for the scatterometry overlay metrology and the other periodic targets are selected for the imaging overlay metrology.

12. A method as recited in claim 7, wherein the criteria include relative performance of the scatterometry overlay metrology and the imaging overlay metrology and whether or not the target layer has a relatively high or low tolerance to overlay error, wherein the periodic targets in a low tolerance layer are selected for the scatterometry overlay metrology and the periodic targets in a high tolerance layer are selected for the imaging overlay metrology.

13. A method as recited in claim 7, wherein the criteria include relative dynamic range of the scatterometry overlay metrology and imaging overlay metrology and an expected range for the overlay data.

14. A method as recited in claim 13, wherein the periodic targets having an expected high valued overlay error are selected for the imaging overlay metrology and the other periodic targets are selected for the scatterometry overlay metrology.

15. A method as recited in claim 13, wherein the periodic targets having relatively dense features are selected for imaging overlay metrology and the periodic targets having relatively isolated features are selected for scatterometry overlay metrology, or visa versa.

16. A method as recited in claim 1, further comprising using the scatterometry overlay data to calibrate a tool used for obtaining the imaging overlay data.

17. A method as recited in claim 7, wherein the criteria includes the relative performance of scatterometry overlay metrology and imaging overlay metrology, the relative speed of the scatterometry overlay metrology and the imaging overlay metrology, the relative size of the periodic targets, whether the periodic targets have relatively dense or isolated features, and whether the periodic targets are in the scribe line.

18. A method as recited in claim 1, wherein each first structure has a first center of symmetry and each second structure has a second center of symmetry and wherein the first center of symmetry and the second center of symmetry for each target are offset with respect to each other by a selected one of the predefined offsets.

19. A method as recited in claim 1, wherein the overlay error is determined without comparing the measured optical signals to calibration data.

20. A method as recited in claim 1, wherein the scatterometry overlay technique is a linear based technique.

21. A method as recited in claim 1, wherein the scatterometry overlay technique is a phase based technique.